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ABSTRACT

A method of forming a pre-metal dielectric film having good as deposited gapfill characteristics, as well as good mobile-ion gettering capability. The method involves first depositing a layer of high-ozone undoped silicon dioxide film having a high ozone/TEOS volume ratio. Then, a low-ozone doped BPSG film is deposited over the high-ozone undoped silicon dioxide layer. The film layers are heat treated to densify the film, and then the top layer is planarized using known planarization techniques to a thickness that allows for adequate mobile-ion gettering.